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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/694,323

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Pankaj Mehra

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EXAMINER

FEARER, MARK D

ART UNIT

PAPER NUMBER

2443

NOTIFICATION DATE

DELIVERY MODE

11/17/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/694,323	Applicant(s) MEHRA, PANKAJ	
	Examiner MARK D. FEARER	Art Unit 2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's Amendment filed 05 August 2008 is acknowledged.
2. Claims 1-17 are still pending in the present application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 1-3, 7, 9-10 and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (US 6907470 B2) in view of Ball et al. (US 20030046390 A1) and in further view of Weil et al. (US 20020093954 A1).

Consider claim 1. Sawada et al. discloses a communication apparatus for routing or discarding a packet sent from a user terminal, comprising: a plurality of ports; a

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plurality of link up/down detection logic units, each link up/down detection logic unit associated with a port and configured to detect a change in the state of a link associated with the port (column 3 lines 8-12); however, Sawada et al. fails to disclose a configuration validation checker coupled to each of the link up/down detection logic units. Ball et al. discloses methods for construction multi-layer topological models of computer networks comprising a configuration validation checker coupled to each of the link up/down detection logic units (paragraphs 0020 and 0026). Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate methods for construction multi-layer topological models of computer networks comprising a configuration validation checker coupled to each of the link up/down detection logic units as taught by Ball et al. with a communication apparatus for routing or discarding a packet sent from a user terminal, comprising: a plurality of ports; a plurality of link up/down detection logic units, each link up/down detection logic unit associated with a port and configured to detect a change in the state of a link associated with the port as taught by Sawada et al. for the purpose of managing network topology changes. However, Sawada et al., as modified by Ball et al., fails to disclose a configuration validation checker that causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change. Weil et al. discloses a method for failure protection in communication networks wherein a configuration validation checker causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change ((When a router detects a change in the network topology, e.g.

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a link failure, node failure or an addition to the network, this information is communicated to its L3 peers within the routing domain. In link state routing protocols, such as OSPF and Integrated IS-IS, the information is typically carried in link state advertisements (LSAs) that are flooded` through the network (step 504). The information is used to create within the router a link state database (LSDB) which models the topology of the network in the routing domain. The flooding mechanism ensures that every node in the network is reached and that the same information is not sent over the same interface more than once. LSA's might be sent in a situation where the network topology is changing and they are processed in software. For this reason the time from the instant at which the first LSA resulting from a topology change is sent out until it reaches the last node might be in the order of a few seconds. However, this time delay does not pose a significant disadvantage as the network traffic is being maintained on the recovery paths during this time period.) paragraphs 0061-0062).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate a method for failure protection in communication networks wherein a configuration validation checker causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change as taught by Weil et al. with methods for construction multi-layer topological models of computer networks comprising a configuration validation checker coupled to each of the link up/down detection logic units and a communication apparatus for routing or discarding a packet sent from a user terminal, comprising: a plurality of ports; a plurality of link up/down detection logic units, each link up/down

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detection logic unit associated with a port and configured to detect a change in the state of a link associated with the port as taught by Sawada et al., as modified by Ball et al., for the purpose of network configuration validation.

Consider claim 2, as applied to claim 1. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the switch wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets (Sawada et al., column 1 lines 65-67 and column 2 lines 1-21, and Weil et al., paragraph 0010).

Consider claim 3, as applied to claim 1. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the switch wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by discarding all packets destined to that link (Sawada et al., column 11 lines 33-48).

Consider claim 7. Sawada et al., as modified by Ball et al. and Weil et al., discloses a switch, comprising: a plurality of ports; a plurality of link up/down detection logic units, each link up/down detection logic unit (Ball et al., paragraphs 0020 and 0026) associated with a port and adapted to detect a change in the state of a link associated with the port (Sawada et al., column 3 lines 8-12); and means for causing

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the switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change (Weil et al., paragraphs 0061-0062).

Consider claim 9, as applied to claim 7. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the switch including a means for receiving an indication from the link up/down detection logic units that a link to an associated port has become non-functional and a means for ceasing routing of all packets destined to that link (Sawada et al., column 11 lines 33-48).

Consider claim 10. Sawada et al., as modified by Ball et al. and Weil et al., discloses a network, comprising: a plurality of switches coupled together; at least one end node coupled to at least one switch; wherein at least one switch includes: a link up/down detection logic (Ball et al., paragraphs 0020 and 0026) unit associated with a port and configured to detect a change in the state of the link (Sawada et al., column 3 lines 8-12); and a configuration validation checker coupled to the link up/down detection logic unit, said configuration validation checker causes the switch to change its routing behavior with regard to the port if the link up/down detection unit has detected a state change (Weil et al., paragraphs 0061-0062).

Consider claim 12, as applied to claim 10. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the network including a plurality of ports and a link up/down detection logic associated with each port, and wherein each link up/down

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detection logic unit informs the configuration validation checker when a link to an associated port becomes non-functional, and the configuration validation checker responds by rejecting all packets destined to that link (Sawada et al., column 11 lines 33-48).

Consider claim 13. Sawada et al., as modified by Ball et al. and Weil et al., discloses a method performed by a switch contained in a system, comprising: the switch monitoring a port for a link down event or a link up event, said link down event indicative of a link from the switch to an entity becoming non-functional and said link up event indicative of a newly established link from the switch to said entity; the switch detecting a link down event associated with said switch or a link up event associated with said switch receiving a packet into said switch (Sawada et al., column 3 lines 8-12); the switch determining if said packet is to be routed out through said port associated with the detected link down event or link up event (Ball et al., paragraph 0026); if the switch determines that the packet is to be routed out through said port associated with a detected link down event, the switch discarding the packet and if the switch determines that the packet is to be routed out through said port associated with a detected link up event, the switch routing the packet through said port (Weil et al., paragraphs 0061-0062).

Consider claim 14, as applied to claim 13. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including if the switch determines that

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the packet is to be routed out through said port associated with a detected link down event, discarding all packets received by the switch (Sawada et al., column 11 lines 33-48).

Consider claim 15, as applied to claim 13. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including requesting the entity to provide a unique identifier to the switch (Ball et al., paragraph 0075).

Consider claim 16, as applied to claim 15. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including the switch receiving a unique identifier from the entity, comparing the unique identifier received from the entity to state information contained in the switch and, if the unique identifier from the entity does not match a value in the state information, discarding a packet destined for the entity ((“When a node receives new topology information it updates its LSDB (link state database) and starts the process of recalculating the forwarding table (step 505). To reduce the computational load, a router may choose to postpone recalculation of the forwarding table until it receives a specified number of updates (typically more than one), or if no more updates are received after a specified timeout. After the LSAs (link state advertisements) resulting from a change are fully flooded, the LSDB is the same at every node in the network, but the resulting forwarding table is unique to the node.”) Weil et al., paragraph 0065).

Consider claim 17, as applied to claim 16. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including if the unique identifier from the entity matches a value in the state information, permitting packets destined for the entity to be routed from the switch to the entity (Ball et al. paragraphs 0062 and 0113).

5. Claims 4-6, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (US 6907470 B2) in view of Ball et al. (US 20030046390 A1) in further view of Weil et al. (US 20020093954 A1) and in further view of Kao et al. (US 7054951 B1).

Consider claim 4, as applied to claim 1. Sawada et al., as modified by Ball et al. and Weil et al., discloses a configuration validation checker responding to a non-functional link. However, Sawada et al., as modified by Ball et al. and Weil et al., fails to disclose a configuration validation checker responding to a non-functional link notification by: receiving an identifier value from an entity coupled to the switch via the functional link; comparing the identifier value received from the entity with topology information contained in the switch; and if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or if the identifier value does not match a value in the topology information, discarding all packets targeting the functional link. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was

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generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received ((“When a topology discovery packet is received (376), a check is made to determine if the topology packet was generated by the receiving node (378). If so, then the topology information is evaluated (380) and stored/updated in the topology table as appropriate (382). More specifically, entries in the topology table can be added or entries updated based on the received topology information. If the topology packet was not generated by the receiving node, then a check is made to determine if the ring identifier for the node has local significance only (384). If not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received (386). If no match arises, then the packet is forwarded without appending any information relating to the receiving node to the topology discovery packet (388) and thereafter the process can continue at step 376. If the ring identifier matches, then the address for the receiving node is appended to the topology packet, and as appropriate, the ring identifier associated with the ring on which the packet was received is appended to the topology packet as well (390). Thereafter, the packet is forwarded at step 388.”) column 13 lines 51-67 and column 14 lines 1-5) and packets are discarded if an address does not match an identifier (column 12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received and packets are discarded if an address does not match an identifier as taught by Kao et al. with a configuration validation checker responding to a non-functional link as taught by Sawada et al., as modified by Ball et al. and Weil et al., for the purpose of effectively routing packets.

Consider claim 5, as applied to claim 1. Sawada et al., as modified by Ball et al., Weil et al. and Kao et al., further discloses the switch wherein said configuration validation checker receives topology information from an entity external to the switch and compares the received topology information to topology information contained in the switch (Weil et al., column 14 lines 25-44).

Consider claim 6, as applied to claim 5. Sawada et al., as modified by Ball et al., Weil et al. and Kao et al., further discloses the switch wherein if the topology information contained in the switch does not comport with the topology information received from

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the external entity, preventing the newly received topology information from being used by the switch ((“In an IP routed network, distributed calculations are performed in all nodes independently to calculate the connectivity in the routing domain and the interfaces entering/leaving the domain. Both the common intra-domain routing protocols used in IP networks (OSPF and Integrated IS-IS) are link state protocols which build a model of the network topology through exchange of connectivity information with their neighbours. Given that routing protocol implementations are correct (i.e. according to their specifications) all nodes will converge on the same view of the network topology after a number of exchanges. Based on this converged view of the topology, a routing table is produced by each node in the network to control the forwarding of packets through that node, taking into consideration this particular node's position in the network. Consequently, the routing table, before and after the failure of a node or link, could be quite different depending on how route aggregation is affected.”) Weil et al., paragraph 0092).

Consider claim 8, as applied to claim 7. Sawada et al., as modified by Ball et al., Weil et al. and Kao et al., further discloses the switch including a means for receiving an indication from the link up/down detection logic units that a link to an associated port has become non-functional and a means for ceasing routing of all packets (Sawada et al., column 1 lines 65-67 and column 2 lines 1-21 and Weil et al., paragraph 0010).

Consider claim 11, as applied to claim 10. Sawada et al., as modified by Ball et al., Weil et al. and Kao et al., further discloses the network wherein the link up/down detection logic unit informs the configuration validation checker when the link becomes non-functional, and the configuration validation checker responds by rejecting all packets (Sawada et al., column 1 lines 65-67 and column 2 lines 1-21).

Response to Arguments

6. Applicant's arguments filed 05 August 2008 with respect to claims 1-2, 7, 10 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Mark Fearer whose telephone number is (571) 270-1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tonia Dollinger can be reached on (571) 272-4170. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

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Mark Fearer

/M.D.F./

November 3, 2008

/Tonia LM Dollinger/

Supervisory Patent Examiner, Art Unit 2443